IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A method of monitoring erosion of a system component in a plasma processing system, the method comprising:

exposing a system component having a gas emitter to a plasma process, wherein the gas emitter comprises a discrete cavity having a predetermined shape and is embedded within the system component to contain a sensor gas therein; and

monitoring the plasma processing system for release of a sensor gas from the gas emitter during said process to determine erosion of the system component.

Claim 2 (Original): The method according to claim 1, wherein said exposing comprises exposing a consumable part to said process.

Claim 3 (Original): The method according to claim 1, wherein said exposing comprises exposing at least one of a ring, a shield, an electrode, a baffle, and a liner to said process.

Claim 4 (Original): The method according to claim 1, wherein said monitoring comprises monitoring at least one gas having fluorescent properties when excited by a light produced in the plasma.

Claim 5 (Original): The method according to claim 1, wherein said monitoring comprises monitoring at least one gas having fluorescent properties when excited by excited gas species produced in the plasma.

Claim 6 (Original): The method according to claim 1, wherein said monitoring comprises using an optical monitoring system to detect fluorescent light emission.

Claim 7 (Original): The method according to claim 6, wherein said monitoring further comprises determining if the intensity level of the fluorescent emission exceeds a threshold value.

Claim 8 (Original): The method according to claim 7, wherein said monitoring further comprises identifying the system component from a detected wavelength of the fluorescent light emission.

Claim 9 (Original): The method according to claim 7, wherein said monitoring further comprises measuring an intensity level of the fluorescent emission to arrive at a determination of whether the component needs to be replaced, and based on the determination, either continuing with the process or stopping the process.

Claim 10 (Original): The method according to claim 1 wherein said monitoring comprises using a mass sensor to detect a mass signal.

Claim 11 (Original): The method according to claim 10, wherein said monitoring further comprises determining if an intensity level of the mass signal exceeds a threshold value.

Claim 12 (Original): The method according to claim 10, wherein said monitoring further comprises identifying the system component from the mass signal.

Claim 13 (Original): The method according to claim 10, wherein said monitoring further comprises measuring an intensity level of a mass signal to arrive at a determination of whether the component needs to be replaced, and based on the determination, either continuing with the process or stopping the process.

Claim 14 (Original): The method according to claim 1, wherein said monitoring comprises monitoring for release of at least one of He, Ne, Ar, Kr, Xe, N_2, O_2, NO, and N_2O.

Claims 15 and 16 (Canceled).

Claim 17 (Currently Amended): A plasma processing system, comprising:

a plasma processing chamber;

a plasma source configured to create a plasma from a process gas;

a system component having a gas emitter, wherein the gas emitter comprises a discrete cavity having a predetermined shape and is embedded within the system component to contain ~~contains~~ a sensor gas therein;

a monitoring system configured to monitor for the release of the sensor gas from the gas emitter to determine erosion level of the system component; and

a controller configured to control the plasma processing system.

Claim 18 (Original): The system according to claim 17, wherein the system component comprises a consumable part.

Claim 19 (Original): The system according to claim 17, wherein the sensor gas comprises at least one gas having fluorescent properties when excited by a light produced in the plasma.

Claim 20 (Original): The system according to claim 17, wherein the sensor gas comprises at least one gas having fluorescent properties when excited by excited gas species produced in the plasma.

Claim 21 (Original): The system according to claim 17, wherein the monitoring system comprises an optical monitoring system for monitoring fluorescent light emission from the plasma processing chamber during processing.

Claim 22 (Currently Amended): The system according to claim 17, wherein the monitoring system [[i]] comprises a mass sensor for monitoring a mass signal from the plasma processing chamber during processing.

Claim 23 (Original): The system according to claim 17, wherein the system component comprises at least one of a ring, a shield, an electrode, a baffle, and a liner.

Claim 24 (Original): The system according to claim 17 wherein the system component comprises at least one of silicon, quartz, alumina, carbon, silicon carbide, aluminum, and stainless steel.

Claim 25 (Original): The system according to claim 17, wherein the system component further comprises a protective barrier.

Claim 26 (Original): The system according to claim 25, wherein the protective barrier comprises at least one of Y_2O_3, Sc_2O_3, Sc_2F_3, YF_3, La_2O_3, CeO_2, Eu_2O_3, DyO_3, SiO_2, MgO, Al_2O_3, ZnO, SnO_2, and In_2O_3.

Claim 27 (Original): The system according to claim 17, wherein the plasma source comprises an inductive coil.

Claim 28 (Original): The system according to claim 17, wherein the plasma source comprises a plate electrode.

Claim 29 (Currently Amended): The system according to claim 17, wherein the plasma source comprises at least one of an ECR source, an ESRF source, a microwave device, a Helicon wave source, and a surface wave source.

Claim 30 (Currently Amended): [[A]] The plasma processing system of Claim 17, ~~comprising:~~

~~a plasma processing chamber;~~

~~a plasma source configured to create a plasma from a process gas;~~

~~a system component having a gas emitter,~~ wherein the gas emitter contains a sensor gas capable of fluorescent light emission when exposed to a plasma;

an optical monitoring system for monitoring light emission from the plasma processing chamber during processing to monitor erosion level of the system component, wherein the optical monitoring system is further configured to identify the system component from ~~awavelength~~ a wavelength of the fluorescent light emission, to determine if an intensity

level of the fluorescent emission exceeds a threshold value, to determine if the system component needs to be replaced, and based on the determination, either continue with the process or stop the process~~; and~~

~~a controller configured to control the plasma processing system~~.

Claim 31 (Currently Amended): [[A]] The plasma processing system of claim 17, further comprising:

~~a plasma processing chamber;~~

~~a plasma source configured to create a plasma from a process gas;~~

~~a system component having a gas emitter, wherein the gas emitter contains a sensor gas;~~

a mass sensor for monitoring a mass signal from the plasma processing chamber during processing to monitor erosion level of the system component; wherein the mass sensor is further configured to identify the system component from the mass signal, to determine if an intensity level of the mass signal exceeds a threshold value, to determine if the system component needs to be replaced, and based on the determination, either continue with the process or stop the process~~; and~~

~~a controller configured to control the plasma processing system~~.

Claim 32 (Currently Amended): A monitorable consumable system component, comprising:

a system element that is consumed during processing performed by the system; and

a gas emitter being a discrete cavity having a predetermined shape and embedded within the system element to contain ~~containing~~ a sensor gas therein ~~coupled to the system element~~.

Claim 33 (Original): The consumable system component according to claim 32, wherein the sensor gas is capable of fluorescent light emission when exposed to a plasma.

Claim 34 (Original): The consumable system component according to claim 33, wherein the light emission is used to monitor erosion level of the system component.

Claim 35 (Original): The consumable system component according to claim 32, wherein a mass signal is used to monitor erosion level of the system component.

Claim 36 (Original): The consumable system component according to claim 32, wherein the system element comprises a ring, a shield, an electrode, a baffle, or a liner.

Claim 37 (Original): The consumable system component according to claim 32, wherein the system element comprises a focus ring.

Claim 38 (Original): The consumable system component according to claim 32, wherein the system element comprises an electrode plate.

Claim 39 (Original): The consumable system component according to claim 32, wherein the system element comprises a deposition shield.

Claim 40 (Original): The consumable system component according to claim 32, wherein the system element comprises at least one of silicon, quartz, alumina, carbon, silicon carbide, aluminum, and stainless steel.

Claim 41 (Original): The consumable system component according to claim 32, wherein the gas emitter is fully encapsulated by the system element to provide a closed volume that contains a fixed amount of sensor gas within the gas emitter .

Claim 42 (Currently Amended): The consumable system component according to claim 32, wherein [[the]] a light emission from the sensor gas allows for identifying the consumable system component.

Claim 43 (Original): The consumable system component according to claim 32, wherein a mass signal from the sensor gas allows for identifying the consumable system component.

Claim 44 (Original): The consumable system component according to claim 32, wherein the sensor gas comprises at least one of He, Ne, Ar, Kr, Xe, N_2, O_2, NO, and N_2O.

Claim 45 (Original): The consumable system component according to claim 32, wherein the system component further comprises a protective barrier.

Claim 46 (Original): The consumable system component according to claim 45, wherein the protective barrier comprises at least one of Y_2O_3, Sc_2O_3, Sc_2F_3, YF_3, La_2O_3, CeO_2, Eu_2O_3, DyO_3, SiO_2, MgO, Al_2O_3, ZnO, SnO_2, and In_2O_3.

Claim 47 (Currently Amended): A monitorable consumable system component, comprising:

a system element that is consumed during processing performed by the system; and

a gas emitter containing a sensor gas coupled to the system element ~~The consumable system component according to claim 32~~, further comprising a gas supply line configured to connect said gas emitter to a sensor gas source that supplies said sensor gas to the gas emitter.

Claim 48 (Original): The method according to claim 1, wherein said monitoring comprises monitoring for release of a fixed amount of said sensor gas contained in an enclosed volume of said gas emitter.

Claim 49 (Currently Amended): A method of monitoring erosion of a system component in a plasma processing system, the method comprising:

exposing a system component having a gas emitter to a plasma process; and

monitoring the plasma processing system for release of a sensor gas from the gas emitter during said process to determine erosion of the system component ~~The method according to claim 1~~, wherein said monitoring comprises monitoring for release of said sensor gas from said gas emitter, [[said]] a supply of sensor gas being supplied from a gas source to said gas emitter.

Claim 50 (Original): The system according to claim 17, wherein said gas emitter comprises a closed volume that is fully encapsulated within said system component to contain a fixed amount of sensor gas within the gas emitter.

Claim 51 (Currently Amended): A plasma processing system, comprising:

a plasma processing chamber;

a plasma source configured to create a plasma from a process gas;

a system component having a gas emitter, wherein the gas emitter contains a sensor gas;

a monitoring system configured to monitor for the release of the sensor gas from the gas emitter to determine erosion level of the system component; and

a controller configured to control the plasma processing system ~~The system according to claim 17~~, further comprising:

a sensor gas source configured to provide a supply of said sensor gas; and

a gas supply line configured to connect said gas emitter to said sensor gas source in order to supply said sensor gas to said gas emitter.

Claim 52 (New): A method of monitoring erosion of a system component in a plasma processing system, the method comprising:

providing the system component in plasma processing system, the system component having a first gas emitter at a first spatial location along an area of the system component, and a second gas emitter at a second spatial location along the area of the system component;

exposing the system component to a plasma process; and

monitoring the plasma processing system for a first sensor gas from the first gas emitter and a second sensor gas from the second gas emitter during the plasma process in order to determine erosion of the system component at the first and second spatial locations, wherein the first and second process gas are different from one another.

Claim 53 (New): A monitorable consumable system component, comprising:

a system element that is consumed during processing performed by the system; a first gas emitter embedded within the system component at a first spatial location along an area of the system element; and

a second gas emitter embedded within the system element at a second spatial location along an area of the system component, wherein the first gas emitter contains a first sensor gas and the second gas emitter contains a second sensor gas different from the first sensor gas.